

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

NEW SPECIES OF SOLITARY VESPIDAE FROM
NORTH AMERICA
(HYMENOPTERA, VESPIDAE)

BY RICHARD M. BOHART
University of California, Davis

The following species and subspecies are described at this time so that the names can be included in the proposed catalogue of Hymenoptera sponsored by workers at the U. S. National Museum.

Zethus (Zethusculus) arizonensis, new species

Male.—Black, marked with deep yellow. Yellow are: small spot on frons at base of antenna, ocular dot, humeral margin, mesopleural and 2 scutellar spots, parategula apically, 2 spots on tegula, broad apical margin of tergite I, narrow one on II, median apical one on III, apical dot at side of sternite II. Wings brown-stained with purplish reflections, heaviest toward leading edge. Legs partly brownish. Puncturation coarse and close, reduced toward base of abdominal segment II and on terminal abdominal segments, tegula shining. Pubescence minute, pale, well distributed, silvery on propodeum and sides of face in some lights. Antenna with segment III less than one-half as long as I, segment XII small and largely concealing the minute XIII. Clypeus about twice as broad as long, ending in 2 blunt teeth separated by interantennal distance; mandible with teeth rather regularly spaced; antennal bases joined by an irregular transverse carina, interocellar area with a pair of prominent polished tubercles, not bridged in front; head in lateral view divided about in half by hind ocular margin. Humeral margin with a forward-projecting carina about as great as an ocellus diameter, humeral angles small but sharp; postscutellum traversed by a sharp, prominent, w-shaped carina; hind face of propodeum roughened with a deep median groove, a small submedian projection behind postscutellum and an irregular ridge on lateral angles; tarsi broad and flattened, fore tarsus almost as broad as fore tibia. Tergite I swelling abruptly before middle, widest just beyond, where it is about 1.7 times apical breadth and 0.4 times length of segment; segment II with a short stalk, wider than high; tergite I with a clear apical membrane projecting about 3 ocellus diameters; tergite III with a similar membrane laterally but abruptly notched and narrowed over strongly convex middle portion; apices of sternites II and III broadly membranous. Length to apex of second tergite 13.0 mm.

Female.—Markings and structure about as in male. Length to apex of second tergite 13.5 mm.

Holotype, male, California Academy of Sciences, Ent. no. 6141, Phoenix, Arizona, July 15, 1932 (H. S. Gentry). Paratypes, 10 males

MAY 25 1950

and 1 female from the following Arizona localities: Phoenix (H. S. Gentry, H. A. Scullen), Coolidge Dam (H. A. Scullen), Tucson (J. O. Martin), Oracle and San Simon. Three male paratypes from Steins, Grant Co., New Mexico, July 14, 1917. All type material taken in July or August.

The clypeal shape and arrangement of membranes on the abdomen place this species close to *clypearis* Saussure but the points of difference are many. The clypeus has weaker teeth and is less humped, the mandibular teeth are more regular, the antennae are shorter and the hook in the male is minute, instead of prominent, there is no longitudinal inter-antennal carina, the interocellar tubercles are polished, there is no carina from the humeral angle to the tegula, the postscutellar carina is better developed, the tarsi are broader, the first abdominal segment is stouter.

This is the first species of the genus to be described from the western United States and makes the third species for the entire country.

Pseudomasaris zonalis albopictus, new subspecies

Structure and markings exactly as in *zonalis* Cresson (description in Bradley, J. C., 1922, Calif. Univ. Pub. Ent. 1:426-428) except that markings are whitish instead of yellow.

Holotype male, California Academy of Sciences, Ent. no. 6142, Jenny Lake, Grand Teton National Park, Wyoming, June 20, 1940 (G. E. Bohart). Paratypes, 3 males and 11 females from the following localities: Grand Teton National Park (E. C. Van Dyke, G. E. Bohart); Butte Pass Creek, Butte Co., Idaho (R. Bohart); Craters of the Moon, Idaho (R. Bohart); Giveout, Idaho; Wallowa Lake, Oregon (I. McCracken); Colfax, Washington (C. L. Fox). Collections were made in June and July.

The only other species with similar markings is *marginalis* Cresson which, however, has abundant erect black hair on tergite I and in the male the middle femur and tibia are less abruptly swollen. Also in *marginalis* males the sixth antennal segment is less than 3 times its greatest breadth whereas in *albopictus* and the parent species it is nearly 4 times.

Eumenes sculleni, new species

Male.—Black and yellow. Yellow markings are: mandible partly, clypeus, interantennal mark reaching clypeus, scape in front, postocular line, humeral band, posterior pronotal angle, 2 mesopleural spots, lateral mesonotal spot in front of tegula, parategula, tegula partly, small scutellar spots, line across postscutellum, propodeal angle, legs partly including all of tibiae, large ovoid spots separated by less than their diameter at apical two-fifths of tergite I and narrow apical margin, transverse band on tergite II before middle and connected laterally with broad apical band, latter greatly expanded toward middle where it is slightly notched in front, apical margins of tergites III to V and sternites II to VI, dot near apex of sternite I. Antennal apex reddish; wings lightly stained. Pubescence abundant, thick and fulvous. That of tergite I mostly 4 ocellus diameters long, that of II about 2 ocellus diameters, that on apical one-half of tergite II curved toward head contrary to that on basal one-half of tergite. Puncturation of head and thorax moderately close, that of clypeus more coarse toward base. Abdominal tergites very

finely and sparsely punctured, polished; puncturation at middle of tergite II minute; about the same as that at middle of II. Clypeus longer than broad, emargination a rounded v; last antennal segment slender, flattened, and minutely pubescent beneath; first abdominal segment stout, about two-fifths as broad as long, second tergite subglobose, swelling abruptly and roundly from base. Length to apex of second tergite 12.0 mm.

Female.—Markings and structure about as in male. Clypeus sometimes with a small median black mark, mandible mostly black, transverse band on tergite II sometimes narrowly broken (likewise in some male paratypes). Length to apex of second tergite about 12.5 mm.

Holotype male, California Academy of Sciences, Ent. no. 6143, Charleston Mts., Clark Co., Nevada, 7500 feet, July 25, 1942 (H. A. Scullen). Paratypes, 5 males and 2 females, same data as type; 1 male, Charleston Mts, Nevada, 9000 feet, June 21, 1940 (R. M. Bohart). I have also seen a male specimen from Dry Canyon, Iron Co., Utah, August 3, 1919.

This species is very close to *E. verticalis tricinctus* Isely and might be a localized race of it. However, all of the type specimens differ clearly in the pubescence and more globular shape of the second tergite. The markings of *sculleni* are similar in the 2 sexes, whereas in *tricinctus* the female is usually much yellower. Also, the second tergite in *sculleni* is black basally although the yellow bands are broad. This gives it a broadly striped appearance rather than the more patchy or spotted aspect of *tricinctus*. Furthermore, the barely punctate condition of the tergites is not often found in *tricinctus* where at least tergite II has small distinct punctures.

Eumenes crucifera flavitinctus, new subspecies

Male.—Yellow with reddish markings and a small amount of black. Reddish are: antennal flagellum, tip of mandible, frons partly, occiput and vertex mostly, stains along thoracic sutures, posterior spot on pronotum, mesonotum except for triangular lateral spot, mesopleural spot, legs partly, especially on femora, first tergite largely, base of second and transverse spot across summit, basal marks on other tergites and sternites (seen when these are extended). Black are: spot around ocelli, basal one-fifth of first tergite. Wings lightly brown stained, reddish toward base. Pubescence golden, inconspicuous. Puncturation of head and thorax moderate and close. Tergite I well punctured but punctures separated by about 1 to 2 puncture diameters at middle of tergite. Those at middle of second tergite finer but closer, becoming farther apart toward sides and base of tergite. Length to apex of second tergite 11.0 mm.

Female.—Markings about as in male. Mesonotum sometimes with a median anterior yellow line and small posterolateral spot. Reddish band across second tergite usually broken medially. Length to apex of second tergite about 12.0 mm.

Holotype male, Cornell University, Lot 542, sub 327, Blythe, California, August 20, 1927. Paratypes, 1 male and 6 females from the following California localities: Blythe (J. MacSwain, C. M. Dammers); Coachella (E. C. Van Dyke); Laguna Dam, Imperial Co. (C. M. Dammers); Palm Springs. Collecting dates are May 25 to November 25.

This subspecies differs from all other known *Eumenes* of North Amer-

ica by its predominantly yellow markings and great reduction of the black. It represents the extreme desert type of *crucifera* Prov. Occasional specimens of the typical subspecies from more northern points in California tend toward yellow and red but all of these that I have seen have the thorax mostly black. The abdominal puncturation is finer than in typical *crucifera* and much finer than in subspecies *bolliformis* Viereck.

***Dolichodynerus vandykei*, new species**

Male.—Black with the following yellow markings: inverted w-shaped mark on upper half of clypeus, interantennal dot, scape in front, humeral margin, anterior spot on tegula, mesopleural spot, stripe across scutellum posteriorly, outer stripes on tibiae, membrane on propodeum below, bands on apical margins of tergites I to IV and sternites II and IV, exposed portions of sternites V to VII mostly. Brownish are: most of terminal 3 antennal segments, wing veins, leg joints and tarsi. Pubescence pale and inconspicuous. Punctures moderate on head and thorax, coarse and close on most of abdomen, sparse on humps of vertex, well-spaced on pronotum, well-spaced but distinct on tergite V. Emargination of clypeus shallow, sides not produced into sharp points; antennal hook small reaching base of XI; head slightly longer than broad, swollen behind eyes and between ocelli so that vertex has 3 pairs of swellings, ocular emargination depressed about an ocellus diameter below eye level. Humeral margin carinate; mesonotum with a longitudinal median ridge; scutellum and postscutellum not raised, propodeum rough, continued on a level with postscutellum for about 5 ocellus diameters, then sharply nearly vertical. First abdominal segment longer both above and below than second, also longer than broad above; tergites III and IV with subbasal transverse ridges which prevent telescoping of their segments beneath II. Length to apex of second tergite 7.0 mm.

Female.—Markings and structure much as in male. Clypeus and scape black, antenna reddish beneath toward apex, faint reddish postocular spots, tibiae black, sternites III and IV with lateral spots, V and VI black. Head swellings a little less prominent, covered with scattered punctures. Length to apex of second tergite about 9.5 mm.

Holotype male, California Academy of Sciences, Ent. no. 6144, Maricopa Mts., Arizona, April 14, 1947 (H. and M. Townes). Paratypes, 7 males and 3 females from the following localities in Arizona: Maricopa Mts. (H. and M. Townes), Tempe, Santa Rita Mts. (W. Benedict), Nogales (E. C. Van Dyke), Santa Catalina Mts. (H. A. Scullen), 5 mi. N. Wickenburg (L. K. Gloyd). Collecting dates were in every month from April through August.

Structurally this species is very close to *turgiceps* R. Bohart, differing mainly in details of the clypeus. There appear to be several constant pattern differences, however. The following is a key to the 3 known species.

KEY TO THE SPECIES OF DOLICHODYNERUS

1. Tergites III and IV without a subbasal ridge; eye emarginations level with eyes; markings black, orange-red and yellow.....
tanynotus Cameron
- Tergites III and IV with a subbasal ridge which prevents their

- telescoping under II; eye emarginations sharply depressed beneath eye level; markings essentially black and yellow..... 2
2. Clypeal emargination ending in spiniform teeth; puncturation at apical middle of tergite V indistinct; tergite I with a large sub-basal crescentic yellow spot; male with clypeus edged in black and interantennal spot linear.....*turgiceps* R. Bohart
- Clypeal emargination not ending in spiniform teeth; puncturation at apical middle of tergite V distinct; tergite I black except for apical band; male clypeus with apical two-thirds black, basal one-third yellow; male interantennal spot dot-like.....
vandykei R. Bohart

***Symmorphus projectus*, new species**

Male.—Black with yellow markings as follows: mandible mostly, clypeus, scape in front, interantennal and postocular spots, spot on humeral angle, tegular and mesopleural spots, 2 spots on scutellum, legs partly, apical margins of tergites I, II, IV and sternite II (all except that on tergite I incomplete). Apices of antenna and tarsi reddish brown; wings brown-tinted. Pubescence obscure. Clypeus and tergites II to VII finely punctured. Head about as broad as long in front view, clypeus weakly incised, interantennal carina absent or very faint, humeral angle sharply projecting, last antennal segment more than three-quarters as long as XII, postcarinal area of tergite I half as long as its apical breadth. Length to apex of second tergite 6.0 mm.

Female.—Markings and structure about as in male except as follows: antenna black, clypeus with a basal yellow spot, tergite IV black. Head swollen between eyes, vertex pits subequal in circumference to posterior ocelli. Length to apex of second tergite 7.5 mm.

Holotype male, Calif. Acad. Sci. Ent. no. 6145, Fallen Leaf Lake, Eldorado Co., Calif., July 1931 (O. H. Swezy). Paratypes, 40 males and 39 females from the following California localities: Mineral King, Gold Lake, Berkeley, Davis, Fallen Leaf Lake, Tokopah Valley, Quincy, Tahoe, Angora Peak, San Bernardino Mts., Sequoia National Park, Coffee Creek, S. Sonoma Co., Snowline Camp, Carl Inn, Danville, Fort Seward, Alta, Santa Cruz Mts., Mendocino Co., Ventura Co., Calaveras Co., Martinez, Mt. Diablo, West Los Angeles, and Santa Monica. Also, 17 males and 13 females from Oak Creek Canyon and Workman Creek, Arizona; Wallowa National Forest, Klamath Lake, and Forest Grove, Oregon. Other specimens have been studied from Washington, British Columbia, Idaho, Wyoming and Montana. As indicated by the paratype localities, the species is widespread in California, occurring from sea level to over 10,000 ft. in the Sierras.

There is considerable variation in markings (some specimens have complete yellow bands on several abdominal segments) and degree of prominence of the humeral angles. The suppression of the interantennal carina, the large last antennal segment in the male, and the short broad first tergite differentiate it from other known species.